Even worse — risk factors and protective factors for transition from chronic localized low back pain to chronic widespread pain in general practice

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Abstract: STUDY DESIGN: Prospective cohort study with patients with chronic low back pain (CLBP) at primary care setting. OBJECTIVE: The aim of our study was to identify predictors for transition from localized CLBP to chronic widespread pain in general practice. In contrast to the typically investigated risk factors, this study also focuses intensively on protective factors, which decrease the probability of chronic widespread pain. For this, we investigated the resources resilience and coping strategies, which are suspected as potential protective factors for incident chronic pain syndromes. SUMMARY OF BACKGROUND DATA: In primary care, about a quarter of patients with CLBP experience chronic widespread pain (CWP). METHODS: Patients experiencing localized CLBP were included and evaluated after a 6- and 12-month follow-up period regarding the development of CWP. Potential risk factors (sociodemographic data, pain characteristics, depression, anxiety, somatization), protective factors (resilience, coping strategies), and sample characteristics were assessed at baseline. Predictor identification was done by multivariate logistic regression analysis. RESULTS: The 1-year incidence for the onset of CWP among patients with CLBP was 23.8%. We identified the 3 risk factors, female sex, long duration of back pain, and a high rate of psychosomatic symptoms, for the onset of CWP among patients with CLBP. Coping resources and resilience had no impact on the transition from CLBP to CWP. CONCLUSION: The results suggest that CWP is no independent entity but rather a particularly negative occurrence on a continuum of chronic pain. Processes of somatization play a major role in the development of this extreme. LEVEL OF EVIDENCE: 2.

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EPIDEMIOLOGY

Even Worse — Risk Factors and Protective Factors for Transition from Chronic Localized Low Back Pain to Chronic Widespread Pain in General Practice

A Cohort Study

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Study Design. Prospective cohort study with patients with chronic low back pain (CLBP) at primary care setting.

Objective. The aim of our study was to identify predictors for transition from localized CLBP to chronic widespread pain in general practice. In contrast to the typically investigated risk factors, this study also focuses intensively on protective factors, which decrease the probability of chronic widespread pain. For this, we investigated the resources resilience and coping strategies, which are suspected as potential protective factors for incident chronic pain syndromes.

Summary of Background Data. In primary care, about a quarter of patients with CLBP experience chronic widespread pain (CWP).

Methods. Patients experiencing localized CLBP were included and evaluated after a 6- and 12-month follow-up period regarding the development of CWP. Potential risk factors (sociodemographic data, pain characteristics, depression, anxiety, somatization), protective factors (resilience, coping strategies), and sample characteristics were assessed at baseline. Predictor identification was done by multivariate logistic regression analysis.

Results. The 1-year incidence for the onset of CWP among patients with CLBP was 23.8%. We identified the 3 risk factors, female sex, long duration of back pain, and a high rate of psychosomatic symptoms, for the onset of CWP among patients with CLBP. Coping resources and resilience had no impact on the transition from CLBP to CWP.

Conclusion. The results suggest that CWP is no independent entity but rather a particularly negative occurrence on a continuum of chronic pain. Processes of somatization play a major role in the development of this extreme.

Key words: chronic pain, widespread pain, low back pain, primary care, pain generalization.

Level of Evidence: 2

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In primary care, about a quarter (25%–28%) of patients with chronic low back pain (CLBP) experience chronic widespread pain (CWP).[1,2] Wolfe *et al*[3] defined CWP as pain in the left and right side of the body as well as above and below the waist plus pain in the axial skeleton (criteria of the American College of Rheumatology).

Focusing on pain syndromes, CWP is a particularly severe presentation of the disease, which is associated with negative consequences for patients such as decreased quality of life[1] and frequent physical and mental comorbidities.[2] From the societal perspective, CWP constitutes a high socioeconomic burden.

Patients with CWP often report spreading of their pain from chronic regional (CRP) to multilocalized pain. This process has led to the pain transition hypothesis that has frequently

been confirmed in current literature.[4–8] Consequently, it is crucial to understand which predictors are associated with pain spreading in order to unravel the underlying mechanisms and to develop preventive strategies.[9]

A systematic review by Larsson *et al*[10] detected 14 studies that examined the onset of CWP among patients with CRP (pain generalization). Pain generalization occurred in 18% (minimum 9% to maximum 25%) of the subjects.[10] Identified risk factors were female sex, higher age, family history of pain, depressed mood, and pain sites. The data were based on 6 studies, 5 of which[4–8] were population-based prospective studies. These 5 studies evaluated the course of patients with CRP with a focus on other aspects than the transition (*e.g.*, pain status in general: pain intensity, pain disability). Only the patient-based retrospective study by Kindler *et al*[9] aimed to study the transition from CLBP to CWP. The authors describe a transition rate of 25% in patients with CLBP, a figure which is in accordance with a previous study by Lapossy *et al*.[11]

In summary, there are only few population-based studies evaluating the CWP transition from CRP in general, even less from CLBP, and no studies using the primary care setting. However, CWP incidence is high among patients with CLBP, which underlines the relevance of the problem.

The aim of our study was to identify predictors for transition from localized CLBP to CWP in general practice. In contrast to the usually investigated risk factors, this study also focuses on the resources resilience and coping strategies.

MATERIALS AND METHODS

Design Overview

We performed a prospective cohort study. Patients experiencing localized CLBP were included and evaluated after a 6- and 12-month follow-up period regarding the development of CWP (pain generalization). Potential risk factors, protective factors, and sample characteristics were assessed at baseline. A detailed study protocol has been published elsewhere.[12]

Study Population

During a 5-month period, 58 general practitioners (GPs), evenly distributed in rural and urban districts in the North of the German federal state of Hessen, consecutively enrolled all eligible patients consulting for CLBP as a primary or secondary consulting reason (inclusion criteria). The symptom "chronic low back pain" was defined as pain in the back area under the costal arch but over the bottom fold (with or without pain radiation) during most days (*i.e.*, >50%) in the last 3 months. Patients younger than 18 years, pregnant females, and persons with insufficient understanding of the German language or severe cognitive impairments (*e.g.*, dementia) were excluded from the study. For the longitudinal analysis, patients with CWP were excluded after baseline data assessment.

Data Collection

Patients who gave their informed consent got the first questionnaire (T0) directly after consultation and further follow-up questionnaires every 3 months (T1–T4). GPs' recruitment performance was monitored in 2 random quality controls by trained clinical monitors.

Baseline Measurements (T0)

The questionnaire included the following physical and psychological parameters as potential predictors for the onset of CWP (for detailed information see Viniol *et al*[12]).

Pain Characteristics and Sociodemographic Data

Pain localizations and consequently the definition of CWP were assessed by the "body pain drawing model" as proposed by *Pfau et al*.[13] Patients indicated areas of pain on a body scheme.

Pain characteristics and sociodemographic data were collected with the "German Pain Questionnaire" (official pain questionnaire of the German Association for the Study of Pain[14]). We used the modules duration, characteristics, course of pain, sociodemographic data, health care utilization, and medication. The questions cover the following aspects: sociodemographic data, subjective pain description and perception, factors of pain alleviation and exacerbation, disturbance as a result of pain, subjective pain model, screening for depression and anxiety disorders, health care utilization, as well as medical and psychological comorbidities. Nagel *et al*[15] showed good validity and reliability for the questionnaire.

The severity of chronic pain (CP) was measured by the "von Korff's Graded Chronic Pain Questionnaire."[16] The severity is built up on "pain intensity" and "pain-related disability" (internal consistency of subscales: α = 0.68–0.88).[17]

Comorbidities

We used the "Self-Administered Comorbidity Questionnaire" to ask for the 14 most common diagnoses (high blood pressure, heart disease, asthma, chronic obstructive pulmonary disease, ulcer/stomach disease, diabetes, high blood lipid level, kidney disease, osteoarthritis/degenerative arthritis, rheumatoid arthritis, osteoporosis, cancer disease, depression, and other psychiatric diseases).[18,19]

Psychological Parameters and Patient Resources

Psychosomatic symptoms, which typically accompany functional dysfunction, were determined by the somatization subscale of the "Symptom Checklist 90-Revised" (SCL-90-R). It is a commonly used psychological status symptom inventory for psychopathology (internal consistency: α = 0.81).[20]

We used the "Hospital Anxiety and Depression Scale" to screen for anxiety symptoms and depression (internal consistency: anxiety α = 0.80; depression α = 0.81).[21,22]

To detect coping resources for back pain, we used the "Questionnaire of coping resources for back pain" (FBR) (Fragebogen zu Bewältigungsressourcen bei Rückenschmerzen) from Tamcam *et al*.[23]

Resilience, as a further protective factor, was measured by the German short version of the "resilience scale" (RS-11) from Wagnild and Young (internal consistency: α = 0.91).[24,25]

TABLE 1. Characteristics of Non-CWP Chronic Low Back Pain Patients					
	All Participants (n = 423)	CWP After 1 yr (n = 103)	Non-CWP After 1 yr (n = 320)	Statistical Test*	
Sex, n (%)					
Female	244 (57.68)	71 (68.93)	173 (54.06)	0.008†	1.88 (1.17–3.10)†
Age, (mean: SD), yr	56.56 (14.07)	59.97 (13.35)	55.46 (14.13)	0.004‡	4.51 (1.48–7.54)‡
Living with a partner, n (%)	326 (77.07)	79 (76.70)	247 (77.19)	1†	1.01 (0.56–1.80)†
Level and years of education, n (%)					
13/12 yr	216 (51.06)	58 (56.31)	158 (49.38)	0.43§	…
10 yr	135 (31.91)	29 (28.16)	106 (33.13)		
9 yr	59 (13.95)	11 (10.68)	48 (15.00)		
Other graduation	10 (2.36)	4 (3.88)	6 (1.88)		
No qualification	1 (0.24)	0 (0.00)	1 (0.31)		
Missing	2 (0.47)	1 (0.97)	1 (0.31)		
Employment status, n (%)					
Working (full or part-time)	228 (53.90)	47 (45.63)	181 (56.56)	0.05‡	0.64 (0.41–1.02)‡
Reasons for not working, n (%)					
Retired	129 (66.49)	36 (64.29)	93 (67.39)	0.12¶	…
Keeping house	30 (15.46)	8 (14.29)	22 (15.94)		
Unemployed	16 (8.25)	3 (5.36)	13 (9.42)		
Other	17 (8.76)	9 (16.07)	8 (5.80)		
Missing	2 (1.03)	0 (0.00)	2 (1.45)		
First time of back pain, n (%)					
<1 yr	58 (13.71)	5 (4.85)	53 (16.56)	<0.001§	…
1–2 yr	37 (8.75)	7 (6.80)	30 (9.38)		
2–5 yr	57 (13.48)	12 (11.65)	45 (14.06)		
5–10 yr	58 (13.71)	8 (7.77)	50 (15.63)		
>10 yr	213 (50.35)	71 (68.93)	142 (44.38)		

(*Continued*)

TABLE 1. (*Continued*)					
	All Participants (n = 423)	**CWP After 1 yr (n = 103)**	**Non-CWP After 1 yr (n = 320)**	**Statistical Test***	
Graded chronic pain (von Korff Index), n (%)					
0	0 (0.00)	0 (0.00)	0 (0.00)	0.066§	…
1	62 (14.66)	10 (9.71)	52 (16.25)		
2	102 (24.11)	19 (18.45)	83 (25.94)		
3	112 (26.48)	29 (28.16)	83 (25.94)		
4	115 (27.19)	29 (28.16)	86 (26.88)		
Missing	32 (7.57)	16 (15.53)	16 (5.00)		
Number of different therapeutic strategies (median [MAD])	5 (3.00)	7 (3.00)	5 (2.50)	<0.001§	…
Number of consultations because of back pain/6 mo (median [MAD])	3 (2.00)	5 (3.00)	3 (3.00)	0.009§	…
Missing, n (%)	83 (19.62)	27 (26.21)	56 (17.5)		
Number of operations because of back pain (median [MAD])	0 (0.00)	0 (0.00)	0 (0.00)	0.008§	…
Missing, n (%)	13 (3.07)	3 (2.91)	10 (3.13)		
Self-Administered Comorbidity Questionnaire					
Number of diagnosed problems (median [MAD])	2 (1.00)	3 (1.00)	2 (1.00)	<0.001§	…
Missing, n (%)	82 (19.39)	23 (22.33)	59 (18.44)		
Symptom checklist-90-R (somatization)					
Mean value (median [MAD])	0.83 (0.48)	1.02 (0.55)	0.77 (0.44)	<0.001†	0.26 (0.13–0.38)†
Missing, n (%)	45 (10.64)	13 (4.06)	32 (10.00)		
Number of symptoms (median [MAD])	5 (2.00)	6 (2.00)	5 (2.00)	<0.001§	…
Brief resilience scale (RS-11)					
Mean value (mean [SD])	5.30 (1.16)	5.08 (1.20)	5.37 (1.13)	0.04†	−0.29 (−0.57 to −0.02)†
Missing, n (%)	25 (5.91)	6 (5.83)	19 (5.94)		

(*Continued*)

TABLE 1. (*Continued*)

	All Participants (n = 423)	CWP After 1 yr (n = 103)	Non-CWP After 1 yr (n = 320)	Statistical Test*	
Hospital anxiety and depression					
Anxiety (mean [SD])	7.85 (3.70)	8.64 (3.69)	7.58 (3.67)	0.01†	1.06 (0.24–1.89)†
Missing, n (%)	11 (2.60)	0 (0.00)	11 (3.44)		
Depression (mean [SD])	8.00 (3.11)	8.58 (2.84)	7.81 (3.17)	0.02†	0.78 (0.12–1.43)†
Missing, n (%)	6 (1.42)	0 (0.00)	6 (1.88)		
Coping resources of back pain					
Mean value (median [MAD])	5.86 (2.12)	5.66 (2.20)	5.92 (2.09)	0.31†	−0.26 (−0.76 to −0.24)†
Missing, n (%)	17 (4.02)	6 (5.83)	11 (2.60)		
Emotional social support (median [MAD])	5.00 (2.50)	5.0 (2.00)	5.5 (2.50)	0.32§	…
Missing, n (%)	2 (0.47)	0 (0.00)	2 (0.63)		
Practical help (median [MAD])	6.00 (2.00)	6.00 (2.00)	6.00 (2.00)	0.83§	…
Missing, n (%)	5 (1.18)	2 (1.94)	3 (0.94)		
Exercise and relaxation (median [MAD])	6.00 (2.00)	5.50 (2.00)	6.50 (2.00)	0.21§	…
Missing, n (%)	7 (1.65)	2 (1.94)	5 (1.56)		
Hobby and enjoyment (median [MAD])	7.00 (2.00)	6.5 (1.50)	7.00 (2.00)	0.14§	…
Missing, n (%)	8 (1.89)	2 (1.94)	6 (1.88)		
Cognitive strategies (median [MAD])	6.50 (2.00)	6.00 (2.00)	6.50 (2.00)	0.04§	…
Missing, n (%)	4 (0.95)	0 (0.00)	4 (1.25)		

**Further explanations about the used statistical tests are illustrated at the last row of the table.*

†Odds ratio/P value from Fisher exact test.

‡Mean difference/P value from t test.

§P value from Mann-Whitney U test.

¶P value from χ^2 test.

CWP indicates chronic widespread pain; MAD, median absolute deviation.

Follow-up Measurements (T1–T4)

To identify incidental CWP (primary outcome) by screening for pain generalization, all participants received the body pain drawing model quarterly. We also assessed health care utilization and medication after 6 and 12 months.

Statistical Analysis

As a first step, we looked for differences between patients with CLBP and CWP with regard to each variable under study (Table 1). We used Welch *t* test for normally distributed data, the exact Mann-Whitney *U* test for not normally distributed or ordinal data, Fisher exact test for dichotomous data, and a χ^2 test with simulated *P* values for categorical data. Logistic regression analysis was used to model the development of CWP during follow-up. We dealt with missing data by using multivariate imputation by chained equations[26] technique. Imputed values were checked for plausibility by comparing plots of imputed and observed values and plots of their distribution conditional on propensity scores.[27] We then ran our logistic regression model with each of the 20 imputed data sets and pooled the results accordingly.[28] Separate estimates and standard errors were thus combined to overall estimates with standard errors, confidence intervals, and *P* values. We reported pooled goodness-of-fit measures (Nagelkerke's R2[29]) and the Akaike Information Criterion.[30] Regression coefficients were interpreted in terms of their corresponding odds ratios (ORs). Predictions in terms of probabilities to develop CWP are represented by conditional effects plots. All analyses were carried out using the statistical software package R.[31]

RESULTS

A total of 58 GPs (20.4% response rate) participated in the study. GPs collected 746 eligible patients reporting CLBP during the recruitment period (11.4 patients per practice on average [SD: 10.5]). Of these, 655 patients gave informed consent and completed the baseline questionnaire. Eight patients who did not fulfill the low back pain criteria according to the pain drawing model were excluded from the study after baseline data assessment. In addition, 163 patients were excluded because they already had CWP at baseline. Thus, 484 patients with CLBP were included in the subsequent cohort study. Of these, 432 (89%) participants completed the whole follow-up including 4 measurements (52 dropouts). Nine participants were excluded after completion of follow-up because they reported no pain at the end of the study. Finally, data of 423 patients were included in the analysis. The flowchart (Figure 1) presents a detailed presentation of recruitment performance and dropout reasons.

The 1-year incidence for the onset of CWP among patients with CLBP was 23.8% (103 patients with CWP out of 432 patients with CLBP to start with).

At baseline, participants were 56.6 years of age on average, mostly female (57.7%), and 77.1% of them were living with a partner. The majority of participants passed a 12- or 13-year lasting education (51.1%) and were employed during recruitment time (53.9%). The nonworking participants were mainly retired (66.5%). Regarding pain anamnesis, 64.1% of the patients had pain for more than 5 years, and a quarter of patients (27.2%) were experiencing the highest severity grade of pain. Table 1 shows further details and descriptive properties of patients who developed CWP during the follow-up year and patients who did not.

There were substantial differences between patients with CLBP and CWP (Table 1) with respect to sex, age, pain duration, health care utilization (number of consultations and therapeutic strategies, and surgical interventions prior to recruitment), number of Self-Administered Comorbidity Questionnaire–diagnosed comorbidities, somatization, resilience, anxiety, depression, and cognitive strategies, as a part of the coping resources.

Multivariate imputation was performed so that data on all 423 subjects were available for regression modeling. In accordance to our hypothesis, we included 9 independent variables: descriptive characteristics (age, sex, employment status, relationship status), potential risk factors (pain duration, somatization, depression), and protective factors (resilience, coping resources). The resulting regression analysis identified the 3 predictor variables, female sex (OR: 1.95, $P = 0.01$), longer duration of back pain (OR: 1.37, $P < 0.01$), and high rate of psychosomatic symptoms (OR: 2.21, $P < 0.01$), to be significantly associated with the onset of CWP among patients with CLBP. Protective factors (resilience and coping resources) had no significant influence. Table 2 shows the detailed results of the logistic regression analysis. The proportion of explained variance of the model according to Nagelkerke's R2 was 0.15 and the Akaike Information Criterion was 444.06.

Results from the logistic regression analysis are also represented in terms of probabilities to develop CWP as a function of either duration of back pain or somatization, both stratified by sex (Figure 2). These conditional effects plots address, for example, the question on how is the probability of a female who experiences back pain for 2 to 5 years to develop CWP, compared with a male who experiences back pain for more than 10 years. As shown in Figure 2, these probabilities are approximately equal. Variables for the plots were chosen because of their significance in the logistic regression analysis (Table 2).

DISCUSSION

To our knowledge, this is the first study investigating predictors for transition from localized low back pain to CWP in general practice. The 1-year incidence for the onset of CWP among patients with CLBP was 23.8%. We identified the 3 risk factors, female sex, long duration of back pain, and a high rate of psychosomatic symptoms, for the onset of CWP among patients with CLBP. Coping resources and resilience had no impact on the transition from CLBP to CWP.

The association between somatization, defined as "a tendency to experience and communicate somatic distress and symptoms unaccounted for by pathological findings, to attribute them to physical illness, and to seek medical help for them,"[32] and CP has been described frequently.[33] Somatization does not represent a diagnostic category but attends by an increased probability for somatoform pain disorders. The

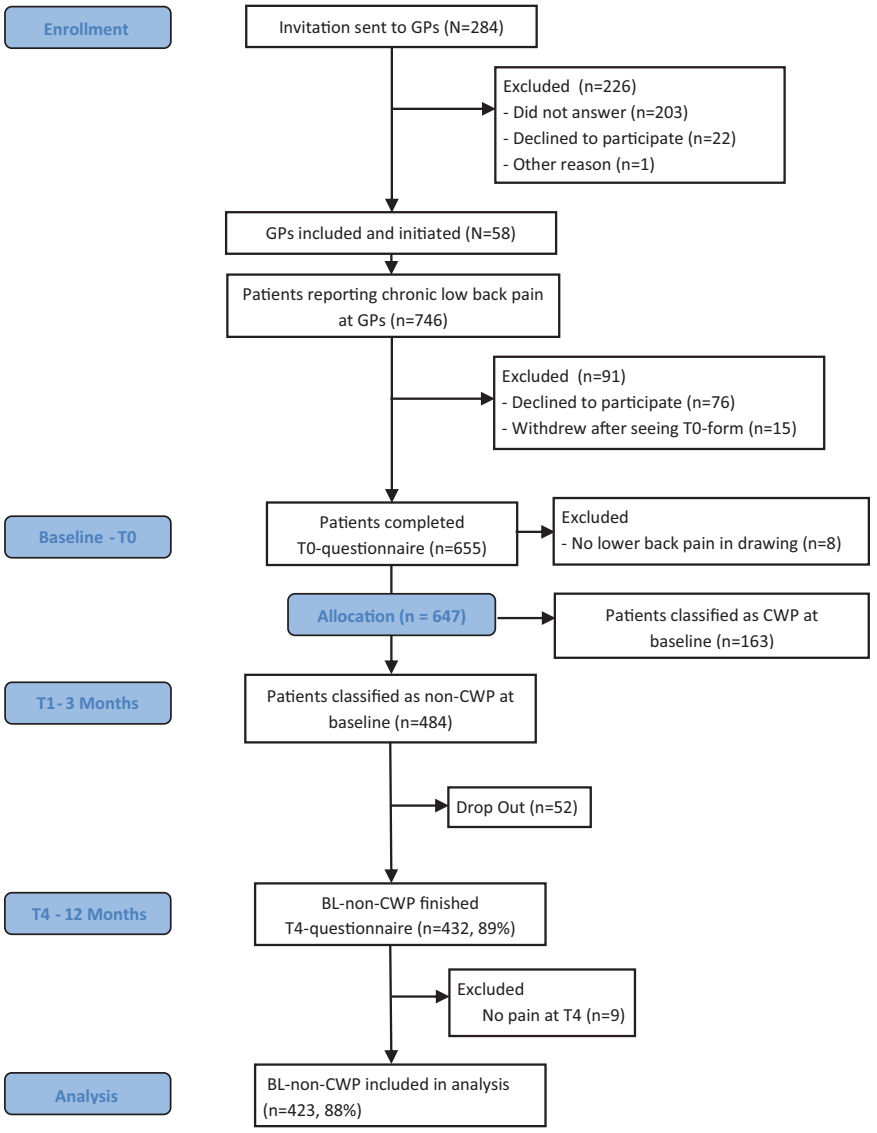

Figure 1. Flowchart of the recruitment performance. GPs indicates general practitioners; CWP, chronic widespread pain; BL, baseline.

role of somatization processes regarding pain generalization is still unclear. In the literature, 2 possible mechanisms are discussed: (1) somatization may be a consequence of CWP and (2) somatization may precede the onset of CWP.[5] Our results support the second hypothesis that the onset of CWP is a manifestation of a somatization process and plays a major role in pain generalization.

Although most pain studies assess the variable "pain duration" for description of baseline characteristics, it has not been common to investigate this variable as a potential predictor for pain generalization. Forseth *et al*[8] reported that pain over a 6-year duration is a risk factor to develop fibromyalgia among patients with pain who did not fulfill fibromyalgia criteria. In addition, our data show that a longer duration of pain is a risk factor for the onset of CWP among CLBP, which contributes to the hypothesis that CWP is a consequence of long-lasting CLBP and no independent entity.

Several large population– and primary care–based studies across multiple geographic regions reported that acute and chronic pain (CLBP and CWP) occur more frequently in females than in males.[34–37] Beyond that, female sex seems to be a risk factor for the onset of CWP among patients with CLBP.[9–11] The results of our study confirm this assumption.

There are discrepancies to the systematic review by Larsson *et al*,[10] who reported an association of "age" and "depression" with pain generalization. However, apart from methodological limitations, none of the included studies investigated the influence of somatization, which may have confounded the association of depression and onset of CWP. The prevalence of somatization in our study might also be higher than that in population-based studies because its definition includes consultation behavior.

Our study investigated the resources resilience and coping strategies as potential protective factors for generalization of CP for the first time. Literature shows that resilience and coping strategies are under consideration to influence pain in a positive way. From few cross-sectional observational studies, we know, for example, that resilient patients with

TABLE 2. Results of the Multiple Logistic Regression (n = 423)

Risk Factors and Protective Factors	Regression Parameter (Log Odds Ratio)	*P*	Odds Ratio
Age (per year)	0.02	0.06	1.02
Sex	**0.67**	**0.01**	**1.95**
Employment status	0.13	0.70	1.14
Living with a partner	0.26	0.43	1.30
Duration of back pain	**0.32**	**<0.01**	**1.37**
Somatization	**0.79**	**<0.01**	**2.21**
Resilience	−0.07	0.56	0.93
Coping resources of back pain	−0.01	0.94	0.99
Depression	0.01	0.87	1.01
Nagelkerke's R2: 0.15 | AIC: 444.06.			

knee osteoarthritis perceive less pain than their low-resilient counterparts with the same clinical findings.[38] Furthermore, patients with CP with active coping strategies experience lower pain intensity than patients with CP with maladaptive coping strategies.[39] In contrast to our expectations, resilience and coping resources have no predictive value for pain generalization. Ramírez-Maestre *et al* did a parsimonious model of the relationship between the parameter resilience, acceptance, active coping, pain intensity, functional status, functional impairment, anxiety, and depression.[40] The results clarify the multifactorial interaction of these psychological parameters showing resilience to influence pain but to act indirectly *via* active coping.[40] Primarily, resilience influences the mental comorbidities such as anxiety and depression.[40] We suppose that resilience and coping do not influence pain generalization in an already chronic stage but they might rather play a role in the onset of CP itself.

Selection bias, emanating from recruiting GPs or patients, might be possible in this cohort study. On the one hand, GPs could have missed recruitment because of high workload or other reasons. On the other hand, doctors might have been more likely to remember recruitment in special cases (*e.g.*, patients with higher disease severity or special characters).

Some potential participants (n = 15) denied participation because of the amount of measured psychological constructs. This could have mostly deterred persons with limited endurance and intellectual abilities. However, among the participating patients, dropout was rather low during follow-up.

Our resulting model of the logistic regression analysis showed a rather low goodness-of-fit measure (Nagelkerke's R2: 0.15). Most likely, this is due to the multicausal nature of CP, which makes it impossible to allow for all influencing factors. Furthermore, any additional factor adds only little to the model and thus would be hard to detect in a statistical analysis. We cannot rule out the risk of unknown potential confounding. However, we tried to focus on the main psychosocial factors described in the literature and resource-based factors relevant for our research question.

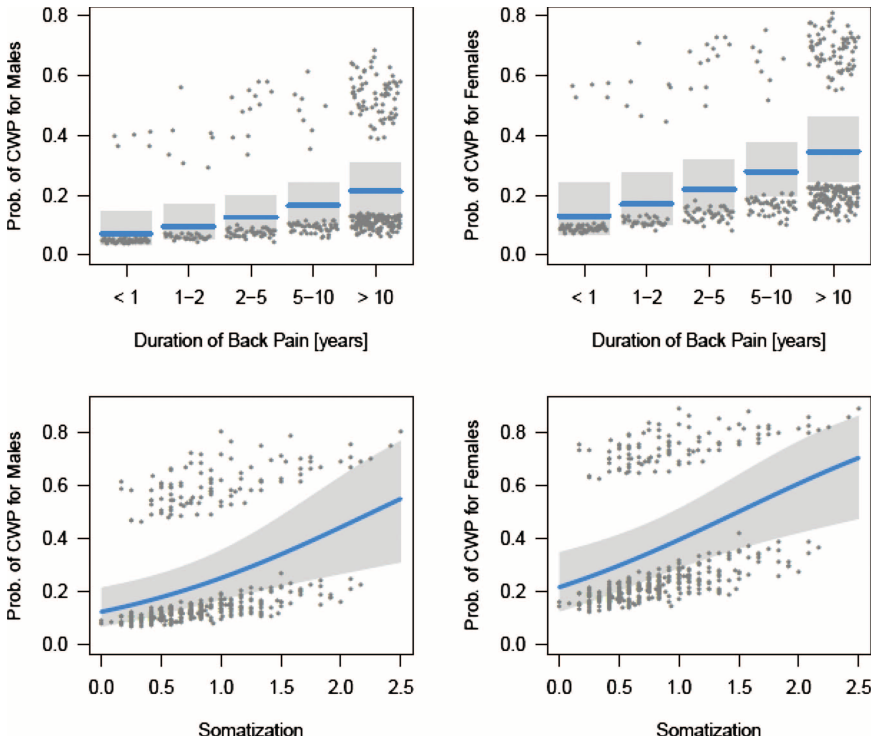

Figure 2. Conditional effects plots of the logistic regression model. Probabilities of developing CWP are plotted against duration of back pain, stratified by sex (upper part of the figure) and against somatization, stratified by sex (lower part of the figure). All other variables of the model are set to their median value. Shades correspond to the 95% point-wise confidence intervals. To be interpreted as follows: a female with a somatization value of 2 has a 1.5 times higher probability to develop CWP than a man with the same somatization value. CWP indicates chronic widespread pain.

CONCLUSION: IMPLICATION FOR PRACTICE

Our study contributes important information optimizing the comprehension of CWP, which we interpret in the following way:

The results suggest that CWP is no independent entity but rather a particularly negative occurrence on a continuum of CP. Processes of somatization play a major role in the development of this extreme.

CWP is a frequent phenomenon in general practice. General practitioners should be alarmed when observing the 3 risk factors, female sex, increased duration of back pain, and a high score in somatization symptoms, among patients with CLBP.

➢ Key Points

- ❑ The 1-year incidence for the onset of CWP among patients with CLBP was 23.8%.
- ❑ We identified the 3 risk factors, female sex, long duration of back pain, and a high rate of psychosomatic symptoms, for the onset of CWP among patients with CLBP.
- ❑ Coping resources and resilience had no impact on the transition from CLBP to CWP.

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